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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,536	01/07/2002	Hans-Jochen Paul	Q67852	4860

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EXAMINER

PRITCHETT, JOSHUA L

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 04/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/036,536

Applicant(s)

PAUL ET AL.

Examiner

Joshua L Pritchett

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement filed April 5, 2002 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because there was no english translation copy of the following documents: DD 298,850; DD 298,849; DE 2,165,315; and DE 198 31 392 as such those documents were not considered; however the remaining documents in the information disclosure statement were considered.. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2872

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-11 and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Muratomi (US 4,997,241).

Regarding claim 1, Muratomi discloses an optical component with a low reflectance for ultraviolet light in a wavelength range between approximately 180 nm and approximately 370 nm for a high angle of incidence (col. 3 lines 64-68), comprising a substrate (Fig. 2) having at least one surface and a multilayer system of multiple stacked layers (Fig. 2) arranged to the at least one surface of said substrate to provide a reduction of reflection (col. 3 lines 64-68), a layer comprising a high refractive or a low refractive dielectric material (Fig. 2), a first layer contacting the substrate being substantially free of magnesium fluoride (Fig. 2) and none of the layers having a layer of thickness of more than about half a wavelength (Fig. 2), where the wavelength is in the ultraviolet wavelength range (col. 3 lines 64-68).

Regarding claim 4, Muratomi discloses the first layer consisting of an oxide (Fig. 2).

Regarding claim 5, Muratomi discloses the low refractive material consists of magnesium fluoride (Fig. 2).

Regarding claim 6, Muratomi discloses the high refractive material consists of aluminum oxide (Fig. 2).

Regarding claim 7, Muratomi discloses the multilayer system thickness is less than two wavelengths (Fig. 2). The total thickness of the disclosed filter is 1.5 wavelengths.

Regarding claim 8, Muratomi discloses the overall thickness of the low refractive material is less than one wavelength (Fig. 2). The first layer, third layer and fifth layer of the

Art Unit: 2872

stack are considered to be low refractive index materials. The total thickness of the three low refractive material layers is 0.75 wavelengths.

Regarding claim 9, Muratomi discloses the multilayer system has no more than six layers (Fig. 2).

Regarding claim 10, Muratomi discloses the ratio between the sum of the layer thickness of the low refractive material layer and the sum of the thickness of high refractive material is below 1.5 wavelengths (Fig. 2). The total thickness of the low refractive material is 0.75 wavelengths and the total thickness of the high refractive material is 0.75 wavelengths, therefore the ratio would be equal to one.

Regarding claim 11, Muratomi discloses a reflectance between approximately 600 nm and approximately 700 nm is less than approximately 2% (Fig. 1).

Regarding claim 13, Muratomi discloses the substrate is made of one of fused silica glass (Fig. 2). A quartz substrate is inherently the same as fused silica glass.

Regarding claim 14, Muratomi discloses the working wavelength of about 248 nm. (col. 3 lines 64-68). In the broadest reasonable interpretation of about 248 nm, 249 nm anticipates the claimed limitation.

Regarding claim 15, Muratomi discloses the reflectance within the working wavelength range covers a bandwidth of more than 1.1 below a give reflectance, wherein the bandwidth is the ratio between the wavelengths of the long-wave limit and the short-wave limit of the wavelength range, in which the reflectance lies below 0.3% (Fig. 1, col. 3 lines 64-68). The ratio of 633 nm to 249 nm is greater than 1.1.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muratomi in view of Hashimoto (US 5,532,871).

Regarding claims 2-3, Muratomi teaches the invention as claimed but lacks the limitation that all the layers have a 0.3 wavelength maximum optical thickness. Hashimoto teaches the use of an ultraviolet antireflective film stack, where the second layer (the layer over 0.3 wavelengths in thickness in the Muratomi reference) and comprising  $Y_2O_3$  (Table 9) have a thickness of 0.2 wavelengths (col. 4 lines 49-51). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the second layer of the Muratomi reference have a thickness as taught by Hashimoto for the purpose of maximizing the space efficiency of the optical filter, thus increasing the range of applicability of the filter.

Regarding claim 12, Muratomi teaches the invention as claimed but lacks reference to the reflectance of the film stack depending upon incident angle. Hashimoto teaches that at an incident angle of 0 degrees and a reflectance of less than 2% (Table 1 and Fig 2). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have

Art Unit: 2872

the reflectance of the Muratomi invention have the dependence on incident angle as taught by Hashimoto for the purpose of minimizing reflection of incident light at common incident angles.

Regarding claim 16, claim 16 is rejected for the same reasons as claims 1, 11 and 12 discussed above.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hunter (US 5,604,629) teaches an ultraviolet reflective interference filter.

Adair (US 5,728,456) teaches a broadband antireflection coating.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 703-305-7917. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

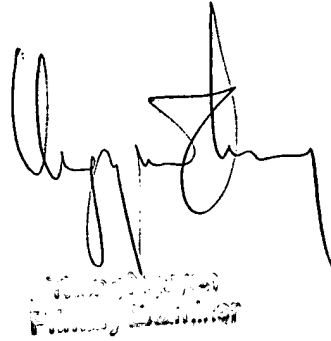
Application/Control Number: 10/036,536

Page 7

Art Unit: 2872

JLP

March 27, 2003



A handwritten signature in black ink, appearing to read "JLP", is written over a rectangular stamp. The stamp contains the text "RECEIVED" and "MARCH 27 2003" in a bold, sans-serif font.